



Mathematics

Applications and Concepts

Course 1

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STANDARDS

PAGE REFERENCES

Grade 5

ALGEBRAIC REASONING: PATTERNS AND FUNCTIONS

Patterns and functional relationships can be represented and analyzed using a variety of strategies, tools and technologies.

How do patterns and functions help us describe data and physical phenomena and solve a variety of problems?

Students should...

1.1 Understand and describe patterns and functional relationships.

a. Identify trends and make predictions based upon patterns and data displayed in different formats.

(1) Extend and compare arithmetic and geometric sequences.

(2) Represent geometric and numeric patterns using words, tables, graphs and equations.

(3) Analyze patterns and data to make generalizations and predictions.

Student Edition:

10-13, 66-69, 282-284

Problem-Solving Strategy 280-281

Study Guide and Review 286 #33-36

Practice Test 287 #22-24

Hands-on Lab 360-361

Teacher Wraparound Edition:

A 13, 69, 284; B 66, 282; DI 11, 282; I-CE 67, 283

STANDARDS	PAGE REFERENCES
1.2 Represent and analyze quantitative relationships in a variety of ways.	
<p>a. Recognize that a change in one variable may relate to a change in another variable.</p> <p>(1) Describe how a change in one variable relates to a change in a second variable in context.</p>	<p>Student Edition: 362-365, 366-369 <i>Hands-on Lab</i> 360-361 <i>Study Guide and Review</i> 372 #49-54 <i>Practice Test</i> 373 #20-24</p> <p>Teacher Wraparound Edition: A 365; B 362; DI 363; I-CE 363</p>
1.3 Use operations, properties and algebraic symbols to determine equivalence and solve problems.	
<p>a. Describe the general relationship between two sets of data using an equation or inequality.</p> <p>(1) Represent mathematical relationships using variables in expressions, equations and inequalities.</p> <p>(2) Model and solve one-step equations using materials that model equivalence.</p>	<p>Student Edition: 34-37, 339-342, 344-347, 350-353, 355-357 <i>Hands-on Lab</i> 337-338, 343, 354 <i>The Game Zone</i> 349 <i>Problem-Solving Strategy</i> 358-359</p> <p>Teacher Wraparound Edition: A 37, 353, 357; I-CE 35</p>

STANDARDS	PAGE REFERENCES
<p>NUMERICAL AND PROPORTIONAL REASONING: Quantitative relationships can be expressed numerically in multiple ways in order to make connections and simplify calculations using a variety of strategies, tools and technologies.</p>	
<p>How are quantitative relationships represented by numbers?</p>	
<p>Students should... 2.1 Understand that a variety of numerical representations can be used to describe quantitative relationships.</p>	
<p>a. Extend whole number place value patterns, models and notations to include decimals, which are fractions that have denominators that 10.</p> <p>(1) Identify, round, order and compare whole numbers to 1,000,000 using place value models, diagrams and number lines.</p> <p>(2) Express numbers in expanded and regrouped forms and use the numbers to support computational strategies.</p> <p>(3) Solve problems involving finding 10, 100 and 1000 more and less than a number.</p> <p>(4) Estimate products and missing factors using multiples of 10, 100 and 1000.</p> <p>(5) Use models to extend whole number place value concepts and patterns to decimals.</p> <p>(6) Explore numbers less than zero and extend the number line to introduce the concept of integers within practical applications.</p>	<p>Student Edition: 102-105, 110 #29-30, 113 #33, 136 Ex 5, 138 #36-41, 294-298, 303 #45-48, 307 #43, 404-407, 409-412 <i>Hands-on Lab</i> 100-101, 299 <i>Study Tip</i> 404, 405 <i>Prerequisite Skills</i> 586</p> <p>Teacher Wraparound Edition: A 105, 298; B 102, 294; DI 103, 295; I-CE 103, 294, 405</p>
<p>b. Classify numbers by their factors.</p> <p>(1) Use rectangular arrays to identify factor pairs and to classify numbers as prime, composite and perfect squares.</p> <p>(2) Explore divisibility rules and patterns with remainders.</p>	<p>Student Edition: 10-13, 14-17, 21 #50-56, 27 #46, 177-180, 185 #42-44 <i>Mid-Chapter Practice Test</i> 22 #4-9 <i>Study Guide and Review</i> 43 #10-23</p> <p>Teacher Wraparound Edition: A 13; B 10, 14; DI 11; I-CE 11, 15 #1-2</p>

STANDARDS	PAGE REFERENCES
<p>c. Express numbers as equivalent fractions, decimals or percents.</p> <p>(1) Represent a rational number in its equivalent fraction, decimal, ratio and percent forms with models, number patterns and common factors.</p> <p>(2) Construct and use models and pictures to add and subtract fractions, decimals and mixed numbers with like and unlike denominators.</p> <p>(3) Use equivalence and substitution with common denominators when adding and subtracting.</p> <p>(4) Construct and use models and pictorial representations to multiply common fractions and mixed numbers.</p>	<p>Student Edition: 121-124, 135-138, 141-143, 144-147, 152-155, 202-205, 206-209, 228-231, 235-238, 240-242, 244-247, 261-264, 265-267, 272-275, 276-279, 400-403, 404-406</p> <p><i>Hands-on Lab</i> 134, 139, 150-151, 259-260, 270-271</p> <p>Teacher Wraparound Edition: A 205, 209, 406; B 202, 206; DI 203, 207, 404; I-CE 203, 207</p>
<p>d. Represent ratios and proportions and solve problems using models and pictures.</p> <p>(1) Build models to identify and compare ratios and describe quantitative relationships using fraction and decimal equivalents.</p> <p>(2) Write division problems in fraction form and round the fraction form to estimate an answer to a division problem.</p> <p>(3) Use ratios and proportions to solve practical problems such as interpreting maps and scale drawings or identifying probability.</p>	<p>Student Edition: 182-185, 380-383, 386-389, 391-393, 397 #29-31, 400-403, 404-406, 415</p> <p><i>Hands-on Lab</i> 384-385</p> <p><i>Spreadsheet Investigation</i> 390</p> <p><i>The Game Zone</i> 399</p> <p>Teacher Wraparound Edition: A 189, 382, 389, 393, 406; B 380; I-CE 183, 381, 392, 401, 405</p>
<p>2.2 Use numbers and their properties to compute flexibly and fluently, and to reasonably estimate measures and quantities.</p>	
<p>a. Estimate and compute using models and pictures.</p> <p>(1) Choose and use benchmarks to approximate locations on number lines and coordinate grids.</p> <p>(2) Estimate and use counting, grouping of objects, number patterns, equivalent ratios and division to find fractional parts of a set of objects.</p> <p>(3) Develop strategies, using place value relationships, inverse operations and commutative, associative and distributive properties, to simplify computations with two-, three-, and four-digit numbers and money amounts.</p> <p>(4) Use estimation to predict results and to recognize when an answer is or is not reasonable.</p> <p>(5) Explain when an estimation strategy will result in an over- or underestimate.</p> <p>(6) Create and solve multistep problems and explore order of operations in the context of practical situations.</p>	<p>Student Edition: 24-27, 28-31, 37 #46-49, 41 #27, 47 #15-20, 116-119, 223-225, 320-323, 333-336</p> <p><i>Problem-Solving Strategy</i> 32-33, 125-126, 156-157</p> <p><i>Prerequisite Skills</i> 592-593</p> <p>Teacher Wraparound Edition: A 27, 31, 119, 323, 336; B 24, 116, 223, 320; DI 116, 136; I-CE 25, 29, 117, 321-322, 334</p>

STANDARDS	PAGE REFERENCES
GEOMETRY AND MEASUREMENT	
Shapes and structures can be analyzed, visualized, measured and transformed using a variety of strategies, tools and technologies.	
How do geometric relationships and measurements help us to solve problems and make sense of our world?	
Students should...	
3.1 Use properties and characteristics of two- and three-dimensional shapes and geometric theorems to describe relationships, communicate ideas and solve problems.	
<p>a. Use geometric relationships to describe polygons and solids.</p> <p>(1) Use geometric relationships such as parallel, perpendicular and congruent to describe the attributes of sets and subsets of shapes and solids.</p> <p>(2) Make and test conjectures about geometric relationships.</p>	<p>Student Edition: 515-517, 522-525 <i>Hands-on Lab</i> 513-514, 526-527</p> <p>Teacher Wraparound Edition: A 525; B 515, 522; DI 523; I-CE 516, 523</p>
<p>b. Recognize that changes in the perimeter of a polygon may affect its area, and changes in area may affect the perimeter.</p> <p>(1) Explore the relationship between area and perimeter when the dimensions of a polygon change.</p> <p>(2) Develop formulas to find the perimeter and area of squares, rectangles and triangles.</p>	<p>Student Edition: 39-41, 158-160, 546-549, 551-554</p> <p>Teacher Wraparound Edition: A 41, 549, 554; B 39, 158, 546, 551; DI 40, 158, 547; I-CE 40, 159, 547, 552</p>
3.2 Use spatial reasoning, location and geometric relationships to solve problems.	
<p>a. Identify, describe and build nets for solid figures and objects.</p> <p>(1) Represent the surface of three-dimensional objects through the use of two-dimensional nets.</p> <p>(2) Investigate and develop strategies to determine the volume of rectangular solids.</p>	<p>Student Edition: 544, 564-566, 575-578 <i>Hands-on Lab</i> 567, 574</p> <p>Teacher Wraparound Edition: A 565, 574; DI 564; I-CE 565; PS 581; T 574; TNT 576</p>
<p>b. Determine geometric relationships through spatial visualization.</p> <p>(1) Plot points on the rectangular coordinate system and estimate and determine the distance between points.</p>	<p>Student Edition: 320-323, 336 #48 <i>Study Guide and Review</i> 326 #66-73 <i>Practice Test</i> 327 #21-24 <i>Standardized Test Practice</i> 328-329 #10, 17-20, 375 #16</p> <p>Teacher Wraparound Edition: A 323; B 320; I-CE 321-322</p>

STANDARDS	PAGE REFERENCES
<p>3.3 Develop and apply units, systems, formulas and appropriate tools to estimate and measure.</p>	
<p>a. Solve problems in the measure of time and in the conversion of units of length in the customary and metric systems using specific ratios.</p> <p>(1) Solve length problems involving conversion of measure within the customary and metric systems.</p> <p>(2) Solve problems involving the conversion of measure of time and elapsed time (days, hours, minutes and seconds).</p> <p>(3) Estimate and choose appropriate units and tools to measure and solve a variety of problems involving length, perimeter, area, volume, capacity, mass, time, angle and temperature.</p>	<p>Student Edition: 39-41, 131 #15, 158-160, 189 #49-50, 243 #36, 278 #35-36, 465-468, 470-473, 476-479, 484-487, 490-493, 494-497, 546-549, 551-554, 570-573, 575-578</p> <p><i>Hands-on Lab</i> 474-475 <i>Problem-Solving Strategy</i> 488-489</p> <p>Teacher Wraparound Edition: A 473, 479, 493; B 470; DI 466, 477; I-CE 466, 471</p>
<p>WORKING WITH DATA: PROBABILITY AND STATISTICS</p> <p>Data can be analyzed to make informed decisions using a variety of strategies, tools and technologies.</p>	
<p>How can collecting, organizing and displaying data help us analyze information and make reasonable predictions and informed decisions?</p>	
<p>Students should...</p> <p>4.1 Collect, organize and display data using appropriate statistical and graphical methods.</p>	
<p>a. Differentiate between numerical and categorical data and their appropriate representations.</p> <p>(1) Construct and interpret broken line graphs, line plots, bar graphs, picture graphs, simple circle graphs, and stem and leaf plots and evaluate how well each kind of display represents the features of the data.</p>	<p>Student Edition: 50-53, 56-59, 62-65, 72-75, 75 #33 <i>Problem-Solving Strategy</i> 54-55 <i>Mid-Chapter Practice Test</i> 70 #4-7 <i>The Game Zone</i> 71</p> <p>Teacher Wraparound Edition: A 53, 59, 65; B 50, 56, 72; DI 51, 73; I-CE 51-52, 57-58, 73</p>
<p>4.2 Analyze data sets to form hypotheses and make predictions.</p>	
<p>a. Examine different data collection methods and their effects.</p> <p>(1) Design and conduct surveys and samplings to collect data that represent a general population.</p> <p>(2) Explore how a change in an outlier can change the measures of central tendency.</p>	<p>Student Edition: 50-53, 56-59, 72-75, 76-78, 80-83 <i>Problem-Solving Strategy</i> 54-55 <i>The Game Zone</i> 71</p> <p>Teacher Wraparound Edition: A 53, 59; B 50, 56, 72; DI 51, 73; I-CE 51-52, 57-58, 73</p>

STANDARDS	PAGE REFERENCES
4.3 Understand and apply basic concepts of probability.	
<p>a. Relate the likelihood of an event to a numerical value.</p> <p>(1) Identify possible outcomes and express the likelihood of events as a fraction.</p> <p>(2) Design and conduct probability experiments and games of chance.</p> <p>(3) Make and test predictions of probability and fairness.</p>	<p>Student Edition: 428-431, 433-436, 441 #19, 444-447 (#21), 450-453 <i>Hands-on Lab</i> 426-427, 432 <i>Mid-Chapter Practice Test</i> 442 <i>The Game Zone</i> 443 <i>Problem-Solving Strategy</i> 448-449</p> <p>Teacher Wraparound Edition: A 436, 453; B 428; DI 429, 433; I-CE 429, 434</p>
Grade 6	
ALGEBRAIC REASONING: PATTERNS AND FUNCTIONS	
Patterns and functional relationships can be represented and analyzed using a variety of strategies, tools and technologies.	
How do patterns and functions help us describe data and physical phenomena and solve a variety of problems?	
Students should...	
1.1 Understand and describe patterns and functional relationships.	
<p>a. Identify relationships and make generalizations through the use of patterns.</p> <p>(1) Describe, analyze and extend numeric, geometric and statistical patterns and use them to identify trends and justify predictions.</p>	<p>Student Edition: 10-13, 66-69, 282-284 <i>Problem-Solving Strategy</i> 280-281 <i>Study Guide and Review</i> 286 #33-36 <i>Practice Test</i> 287 #22-24 <i>Hands-on Lab</i> 360-361</p> <p>Teacher Wraparound Edition: A 13, 69, 284; B 66, 282; DI 11, 282; I-CE 67, 283</p>
1.2 Represent and analyze quantitative relationships in a variety of ways.	
<p>a. Represent and analyze mathematical relationships with the help of tables, graphs, equations and inequalities.</p> <p>(1) Determine the nature of changes in linear relationships using graphs, tables and equations.</p> <p>(2) Represent numerical and contextual situations with algebraic expressions, equations and inequalities.</p>	<p>Student Edition: 34-37, 339-342, 344-347, 350-353, 355-357 <i>Hands-on Lab</i> 337-338, 343, 354 <i>The Game Zone</i> 349 <i>Problem-Solving Strategy</i> 358-359</p> <p>Teacher Wraparound Edition: A 37, 353, 357; I-CE 35</p>

STANDARDS	PAGE REFERENCES
<p>1.3 Use operations, properties and algebraic symbols to determine equivalence and solve problems.</p>	
<p>a. Solve real-world problems using algebraic methods.</p> <p>(1) Use variables as placeholders, to denote a pattern, to write a formula and to represent a function or relation.</p> <p>(2) Evaluate algebraic expressions and formulas using substitution.</p>	<p>Student Edition: 24-27, 28-31, 37 #46-49, 41 #27, 47 #15-20, 362-365, 366-369 <i>Study Guide and Review</i> 44 #32-47 <i>Hands-on Lab</i> 360-361</p> <p>Teacher Wraparound Edition: A 27, 31, 365; B 24, 362, 366; I-CE 25, 29, 363, 367</p>
<p>b. Demonstrate how to maintain equivalence in equations.</p> <p>(1) Model and solve one-step linear equations by maintaining equivalence.</p>	<p>Student Edition: 339-342, 344-347, 350-353 <i>Hands-on Lab</i> 337-338, 343 <i>Mid-Chapter Practice Test</i> 348 #14-25 <i>The Game Zone</i> 349</p> <p>Teacher Wraparound Edition: A 353; B 344; DI 340, 345; I-CE 340, 345</p>
<p>NUMERICAL AND PROPORTIONAL REASONING: Quantitative relationships can be expressed numerically in multiple ways in order to make connections and simplify calculations using a variety of strategies, tools and technologies.</p>	
<p>How are quantitative relationships represented by numbers?</p>	
<p>Students should...</p> <p>2.1 Understand that a variety of numerical representations can be used to describe quantitative relationships.</p>	
<p>a. Relate whole numbers, fractions, decimals and integers to number lines, scales, the coordinate plane and problem-solving situations.</p> <p>(1) Locate, order and compare whole numbers, fractions, decimals and integers on number lines, scales and the coordinate grid.</p> <p>(2) Explain orally and in writing when a situation requires an exact answer or when an estimate is sufficient.</p>	<p>Student Edition: 108-100, 111-113, 116-119, 198-201, 205 #37-40, 209 #34-38, 219-222, 223-225, 256-258, 294-298 303 #46-48, 307 #43 <i>Problem-Solving Strategy</i> 32-33, 125-126 <i>The Game Zone</i> 115 <i>Prerequisite Skills</i> 592-593</p> <p>Teacher Wraparound Edition: A 110, 119, 143; B 108, 111, 116, 223; DI 108, 199; I-CE 109, 199, 295</p>

STANDARDS	PAGE REFERENCES
<p>b. Express place value patterns using exponents to write powers of ten.</p> <p>(1) Recognize place value patterns when multiplying and dividing decimals by powers of 10.</p> <p>(2) Compare large numbers using expanded forms and powers of ten.</p> <p>(3) Develop, describe and use a variety of ways to estimate and calculate with large numbers and connect the strategies to powers of ten.</p>	<p>Student Edition: 136-138, 404-407, 409-412 <i>Study Tip</i> 404, 405</p> <p>Teacher Wraparound Edition: A 138; I-CE 136 #5, 405</p>
<p>c. Interpret and connect fraction notation to division.</p> <p>(1) Use models and common factors to identify equivalent fractions and their decimal representations.</p> <p>(2) Determine the decimal equivalents of fractions.</p> <p>(3) Recognize that multiplication by a unit fraction is equivalent to dividing by the fraction's denominator.</p>	<p>Student Edition: 182-185, 380-383, 400-403, 404-406, 415 <i>Hands-on Mini-Lab</i> 186 <i>The Game Zone</i> 399</p> <p>Teacher Wraparound Edition: A 189, 406; I-CE 183, 401, 405</p>
<p>d. Compare quantities and solve problems using ratios, rates and percents.</p> <p>(1) Estimate and find percents using benchmarks and number patterns.</p> <p>(2) Convert between rates using ratios and proportions.</p> <p>(3) Solve problems involving ratios, proportions and percents.</p>	<p>Student Edition: 380-383, 386-389, 391-393, 397 #29-31, 400-403, 415-417 <i>Hands-on Lab</i> 384-385 <i>Spreadsheet Investigation</i> 390 <i>The Game Zone</i> 399</p> <p>Teacher Wraparound Edition: A 382, 389, 393, 403, 417; B 380; I-CE 381, 392, 416</p>

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2.2 Use numbers and their properties to compute flexibly and fluently, and to reasonably estimate measures and quantities.

a. Solve problems using a variety of computational strategies, including the use of calculators.

(1) Estimate and predict reasonable answers and recognize and explain when an estimate will be more or less than an exact answer.

(2) Use a variety of computational strategies (mental computation, paper-and-pencil and calculator) to add, subtract, multiply and divide multidigit numbers in the context of multistep word and practical problems.

(3) Apply the order of operations and algebraic properties (associative, commutative, distributive, inverse operations and additive and multiplicative identities) to estimate and solve multistep problems.

(4) Use factors of composite numbers, powers of ten and divisibility rules to find products and missing factors.

(5) Add, subtract and multiply fractions and decimals using a variety of computational strategies.

(6) Create and solve a variety of problems involving fractions, decimals, mixed numbers, money and simple percents.

Student Edition:

10-13, 14-17, 19-21, 24-27, 28-31, 116-119, 121-124, 135-138, 141-143, 144-147, 152-155, 223-225, 228-231, 235-238, 240-243, 244-247, 261-264, 265-267, 272-275, 276-279, 333-336, 339-342, 344-347, 350-353, 355-357

Problem-Solving Strategy 32-33

Hands-on Lab 134, 139-140, 150-151, 259-260, 270-271, 332

Mid-Chapter Practice Test 148

The Game Zone 149, 233, 269, 349

b. Describe when products or quotients with fractions and decimals can yield a larger or smaller result than either factor.

(1) Determine the fractional part of a set using procedures connected to models.

(2) Represent division with decimals, fractions and mixed numbers as related to models and context.

Student Edition:

144-147, 152-155, 272-275, 276-279

The Game Zone 149

Hands-on Lab 150-151, 270-271

Teacher Wraparound Edition:

A 147, 155, 275, 279; B 144, 276; I-CE 145, 277

STANDARDS	PAGE REFERENCES
<p align="center">GEOMETRY AND MEASUREMENT</p>	
<p align="center">Shapes and structures can be analyzed, visualized, measured and transformed using a variety of strategies, tools and technologies.</p>	
<p align="center">How do geometric relationships and measurements help us to solve problems and make sense of our world?</p>	
<p align="center">Students should...</p>	
<p align="center">3.1 Use properties and characteristics of two- and three-dimensional shapes and geometric theorems to describe relationships, communicate ideas and solve problems.</p>	
<p>a. Classify polygons according to their properties. (1) Use the relationships of sides and angles to classify sets and subsets of polygons. (2) Make and test conjectures about side and angle relationships and congruence.</p>	<p>Student Edition: 506-509, 510-512, 522-525, 534-536 <i>The Game Zone</i> 519 <i>Hands-on Lab</i> 526-527 <i>Practice Test</i> 541 Teacher Wraparound Edition: A 509, 536; B 506, 510, 522; DI 523; I-CE 507, 523</p>
<p>b. Examine the relationships between the measures of area of two-dimensional objects and volume of three-dimensional objects. (1) Use the rectangle as a basic shape to model and develop formulas for the area of triangles, parallelograms, trapezoids and circles. (2) Recognize the relationships among radius, diameter, circumference and area of circles. (3) Develop and use strategies to determine the volume of rectangular solids and cylinders.</p>	<p>Student Edition: 39-41, 158-160, 161-164, 546-549, 551-554, 556-559, 566 #18-20, 570-573 <i>Hands-on Lab</i> 550, 555 <i>The Game Zone</i> 563 Teacher Wraparound Edition: A 41, 549, 554, 573; B 39, 158, 546, 551; DI 40, 158, 547; I-CE 40, 159, 547, 552</p>
<p align="center">3.2 Use spatial reasoning, location and geometric relationships to solve problems.</p>	
<p>a. Construct similar polygons on coordinate grids. (1) Explore similarity of polygons as a result of dilations (a reduction or enlargement) and their effects on their measurements.</p>	<p>Student Edition: 534-536 <i>Study Guide and Review</i> 540 #32-34 <i>Practice Test</i> 541 #14-15 Teacher Wraparound Edition: A 536; B 534; DI 534; I-CE 535</p>

STANDARDS	PAGE REFERENCES
<p>3.3 Develop and apply units, systems, formulas and appropriate tools to estimate and measure.</p>	
<p>a. Solve problems involving measurement through the use of a variety of tools, techniques and strategies.</p> <p>(1) Estimate and determine length, area, volume, mass and angle measures.</p> <p>(2) Select and use appropriate units, strategies and tools to measure and solve problems involving length, perimeter, area, volume, capacity, weight, mass, temperature and angles.</p>	<p>Student Edition: 39-41, 131 #15, 158-160, 189 #49-50, 243 #36, 278 #35-36, 465-468, 470-473, 476-479, 484-487, 490-493, 494-497, 546-549, 551-554, 570-573, 575-578</p> <p><i>Hands-on Lab</i> 474-475 <i>Problem-Solving Strategy</i> 488-489</p> <p>Teacher Wraparound Edition: A 473, 479, 493; B 470; DI 466, 477; I-CE 466, 471</p>
<p>b. Use specific ratios to convert between measure of length, area, volume, mass and capacity in the customary and metric systems.</p> <p>(1) Use different ratios to convert between units of length, area and volume in the customary and metric systems.</p> <p>(2) Recognize and use powers of ten as conversion ratios in the metric system.</p>	<p>Student Edition: 465-468, 470-473, 476-479, 484-487, 490-493</p> <p><i>Hands-on Lab</i> 474-475 <i>Mid-Chapter Practice Test</i> 482 #3-17</p> <p>Teacher Wraparound Edition: A 473, 479, 493; B 470; I-CE 466, 471</p>
<p>WORKING WITH DATA: PROBABILITY AND STATISTICS</p> <p>Data can be analyzed to make informed decisions using a variety of strategies, tools and technologies.</p>	
<p>How can collecting, organizing and displaying data help us analyze information and make reasonable predictions and informed decisions?</p>	
<p>Students should...</p> <p>4.1 Collect, organize and display data using appropriate statistical and graphical methods.</p>	
<p>a. Display and compare sets of data using various systematic or graphical representations.</p> <p>(1) Compare sets of data graphically using histograms, double bar graphs, back-to-back stem and leaf plots and scatter plots.</p> <p>(2) Construct circle graphs and recognize that they represent data proportionally.</p> <p>(3) Use systematic listing and counting strategies to solve problems.</p>	<p>Student Edition: 62-65, 433-436</p> <p><i>Spreadsheet Investigation</i> 60-61 <i>The Game Zone</i> 71</p> <p>Teacher Wraparound Edition: A 65; B 62; DI 63; I-CE 63</p>

STANDARDS	PAGE REFERENCES
4.2 Analyze data sets to form hypotheses and make predictions.	
<p>a. Describe the shape of data sets using the measures of spread and central tendency.</p> <p>(1) Describe the shape of data sets using measures of spread (range and outliers) and central tendency (mode, median and mean).</p> <p>(2) Recognize that changes in a data set can affect the mode, median, mean and range.</p>	<p>Student Edition: 76-78, 80-83, 89 #15-18 <i>Spreadsheet Investigation</i> 79, 84-85 <i>Study Guide and Review</i> 92 #17-21 <i>Practice Test</i> 93 #3-6</p> <p>Teacher Wraparound Edition: DI 76; I-CE 77, 81; TNT 80</p>
4.3 Understand and apply basic concepts of probability.	
<p>a. Understand that probabilities are more reliable to use as predictors when there is a large number of trials.</p> <p>(1) Explore the relationship between the number of trials in an experiment and the predicted outcomes.</p> <p>(2) Design and conduct probability experiments and make predictions about outcomes that are equally likely or not equally likely.</p>	<p>Student Edition: 428-431, 433-436, 438-441, 444-447, 450-453 <i>Hands-on Lab</i> 426-427 <i>Mid-Chapter Practice Test</i> 442 #3-6 <i>The Game Zone</i> 443 <i>Study Guide and Review</i> 454-456 <i>Practice Test</i> 457</p> <p>Teacher Wraparound Edition: B 433; DI 451; I-CE 445, 451</p>
<p>b. Express probability using various numerical representations.</p> <p>(1) Express probabilities as fractions, ratios, decimals and percents.</p>	<p>Student Edition: 428-431, 433-436, 438-441, 444-447, 450-453 <i>Hands-on Lab</i> 426-427 <i>Mid-Chapter Practice Test</i> 442 #3-6 <i>The Game Zone</i> 443 <i>Study Guide and Review</i> 454-456 <i>Practice Test</i> 457</p> <p>Teacher Wraparound Edition: I-CE 445, 451</p>